

Responses to Comments in Letter USR14 from Andy Ross, United States Resident

Note: The responses listed below are numbered to correspond to the numbers shown in the right-hand margin of the preceding comment letter.

1. Comment acknowledged.
2. The SEIS has been revised to describe the lead time that would be available to the city as a result of ongoing water quality monitoring, and the flexibility that would be provided by having several different wells from which the city obtains its water supply.
3. Extensive environmental investigations of water quality in the Sumas-Abbotsford aquifer have been performed already, recently by Environment Canada, and over the last 20 to 30 years by the U.S. Geological Survey. Those studies have demonstrated that conditions are far too complicated to allow meaningful predictions of nitrate concentrations in a given well. As is evident from nitrate sampling from the city's well fields, substantially different concentrations and trends can coexist a short distance apart, for no discernable reason. It is also worth noting from Figure 3.2-1 the large number of potential sources of nitrate, and the long time that would be required for contamination from a given source to travel to the city's well fields (on average, this travel time is 5 to 10 years, but could be much longer). This complexity speaks to the impracticality of implementing a program to predict nitrate migration. Lacking both predictive capability and any historic record of water quality from private wells, it is not feasible to perform a meaningful evaluation of changes in nitrate levels in private wells as a result of pumping from the S2GF.

The S2GF has not caused existing nitrate contamination and would not contribute to nitrate contamination in the aquifer. In fact, the study by Environment Canada found that a large percentage of the wells in the region already have nitrate concentrations that exceed the drinking water quality standard of 10 mg/L. The increase in pumping rates required for the S2GF would slightly increase the flow rate in the aquifer upgradient of the city's well fields, but while this could slightly affect the timing of nitrate movement to or from a given upgradient well, its impact on nitrate concentrations at any particular location would be minimal and imperceptible in relation to several other local factors. Specifically, nitrate concentrations at any given location would be expected to vary considerably in response to precipitation, irrigation, the depth to the water table, groundwater pumping from the well in question and from neighboring wells, residential septic systems, and most importantly, the history of applications of nitrogen-rich fertilizers and other farming practices in the area upgradient of the well.

4. The recharge area identified by the modeling performed as part of the city's wellhead protection plan (illustrated in part in Figure 3.2-1) identifies flow paths to the city's wells rather than drawdown from pumping of the wells. This map is useful in identifying potential sources of nitrate contamination and the number of years it would be expected

to take for contamination to travel from a source to a well. A major factor in determining recharge area is the natural groundwater gradient.

5. As described in the SEIS, the applicant has committed to performing monitoring to detect and mitigate any wells that were impaired as a result of groundwater withdrawals for the plant operation. This approach would yield far better information about real impacts than any hypothetical hydrogeological study in which the effects of pumping are simulated.
6. Please see response to Comment 5.
7. The applicant has committed to identifying all wells within 1 mile of the city of Sumas well fields in establishing its monitoring program. This is expected to include about 6 wells in Washington and 20 wells in Canada. With the owner's permission, each of the wells would be monitored before and after project startup, along with any other wells where additional aquifer testing indicated there could be an impact. Based on this monitoring, mitigation would be provided for any wells that were impaired as a result of groundwater withdrawals for the plant operation.
8. Please see responses to Comments 3, 4, 5, and 7 in response to the first three issues raised in this comment.
- 9-16. These comments are outside the scope of this SEIS.
17. Comment acknowledged.
- 18-19. These comments are outside the scope of this SEIS.
20. Please see responses to Comments 4 and 5.
21. Please see response to Comment 3.
22. The city has an ongoing water quality monitoring program that provides the necessary information to determine when and if a water treatment system would be necessary to protect its customers. The city also has several wells from which to obtain its water supply, so it would have considerable flexibility and lead time in addressing water quality problems. In the event a water treatment system were required, portable commercial systems are also readily available to meet short-term needs until a more permanent solution could be implemented.
23. The frequency of water quality monitoring should be adjusted, as necessary, for the city to be proactive in ensuring the quality of the water it provides to its customers. However, water quality sampling is performed by the city, so this issue is not germane to this SEIS.
24. The Final SEIS has been revised to indicate that the Abbotsford wells contain nitrates. The use of these wells is being discontinued and replaced by a surface water source.

25. Based on the characteristics of the aquifer, it is anticipated that on-site remedial solutions would be available. With regard to the potential for nitrate contamination, please see response to Comment 3.

26-27. These comments are outside the scope of this SEIS.